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ABSTRACT

Conceptual and operational details of the evaluation of the National Diffusion of Network (NDN) are presented. The NDN promotes the exchange of successful educational practices. The report is divided into five sections, starting with an overview of the report. In the second chapter, a conceptual model for the evaluation is derived. The third chapter presents major features of the evaluation design: sources of evidence, the measurement plan, and the resultant data base. Major evaluation variables, including characteristics of innovations, of networking, of Adopter units, of diffusion strategies, and of adoptions are defined. The hypothesized relationships and directional influence among the categories of variables are shown. Procedures for implementing the evaluation are presented in the fourth chapter. Five major data-gathering activities--Program Review, Status Survey I, Network Evaluation Questionnaire, Observation/Interview Site Visits, and Observation/Documentation of NDN Activities are described in terms of goals, scope, instrumentation, data collection activities, schedule, data processing, analyses, and reporting. The fifth chapter describes the data analysis, which included discriminant analysis of determinants of local education association adoptions; regression analyses among innovations, network and adoption characteristics; and case-study analyses to provide interpretive contexts for more formal analyses and to produce hypotheses for further exploration. (Author/MV)

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March 1976

EVALUATION OF THE NATIONAL DIFFUSION NETWORK: STUDY DESIGN AND ANALYSIS PLAN

Prepared for:

DEPARTMENT OF HEALTH, EDUCATION
AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

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EXECUTIVE SUMMARY

The Study Design and Analysis Plan is the second report issued in connection with Stanford Research Institute's Evaluation of the National Diffusion Network. It presents the conceptual and operational details of the SRI study. The report is divided into five chapters. The first chapter is an introduction and overview of the report. In the second chapter, a conceptual model for the evaluation is derived from the general literature review and from considerations relevant to the NDN. The central feature of the NDN is its major emphasis on interactions among stakeholders (Developer/Demonstrators, State Facilitators, and school systems) in terms of certain key elements of the diffusion and adoption process. The interactive model described in this report will serve to structure the evidence gathered during the study.

The third chapter presents major features of the evaluation design: the sources of evaluation evidence, the measurement plan, and the resultant data base. The major evaluation variables are also defined in this section. These variables are categorized as characteristics of innovations, of networking, of Adopter units, of diffusion strategies, and of adoptions. An evaluation paradigm shows the hypothesized relationships and directional influence among the categories of variables.

In the fourth chapter, the operational plan and procedures for implementing the evaluation are presented. Five major data-gathering activities are described: Program Review, Status Survey I, Network Evaluation Questionnaire, Observation/Interview Site Visits, and Observation/Documentation of NDN Activities. Each of these activities is described in terms of goals, scope, instrumentation, data-gathering activities, schedule, data processing, analyses, and reporting.

The fifth chapter presents the analysis plan. Its three components are discriminant analysis of determinants of LEA adoptions; regression analyses among innovations, Network and adoption characteristics; and case-study analyses to provide interpretive contexts for more formal analyses and to produce hypotheses for further exploration/confirmation.

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GLOSSARY OF ABBREVIATIONS

DD Developer/Demonstrator. An educational project identified as successful by the Dissemination Review Panel and receiving funds from ESEA, Title III, Section 306 to support dissemination activities; also the director of a DD project.

DRP Dissemination Review Panel. (also known as Joint Dissemination Review Panel). A panel of representatives from the U.S. Office of Education and the National Institute of Education that reviews educational programs nominated as exemplary. Programs approved by the DRP may be disseminated on a nationwide basis using federal funds.
Also used to refer to programs approved by the DRP but not receiving federal funds for dissemination activities from ESEA, Title III, Section 306.

DSCS Division of Supplementary Centers and Services. A division of the Bureau of School Systems, USOE; the program office for ESEA, Title III.

ED Educational Diffusion. The Far West Laboratory program of centralized technical assistance to NDN participants.

ESEA Elementary and Secondary Education Act. Funds for State Facilitators and Developer/Demonstrators are provided under Title III, Section 306 of this Act.

FWL Far West Laboratory. Far West's program of centralized technical assistance to NDN participants is known as the Education Diffusion (ED) project.

LEA Local Education Agency.

NDN National Diffusion Network. A Network established in 1974 with support from ESEA, Title III, Section 306 funding to promote the sharing of successful educational programs and practices within states and across state lines.

NEQ Network Evaluation Questionnaire. A comprehensive survey of NDN participants and adopters to be administered by Stanford Research Institute in April 1976.

NIE National Institute of Education.

OMB Office of Management and Budget.

OPBE Office of Planning, Budgeting and Evaluation. An office of the U.S. Office of Education with responsibility for planning and evaluation of USOE programs; the program office for the evaluation of the NDN.

SEA State Education Agency.

SF State Facilitator. A project receiving funds from ESEA, Title III, Section 306 to serve as a linking agent between schools and school systems within a given state (or region within a state) and programs that have received Dissemination Review Panel approval; also, the director of an SF project.

SLEP State and Local Educational Practices. A branch of the Division of Supplementary Centers and Services (the program office for ESEA, Title III) located within the Bureau of School Systems, USOE.

SRI Stanford Research Institute.

SSI Status Survey I. A baseline survey of NDN participants and adopters involved during the 1974-75 school year designed to collect information relevant to the scope and accomplishments of the NDN as it entered its second year of operation.

USOE U.S. Office of Education.

I INTRODUCTION AND OVERVIEW

As part of its continuing interest in identifying successful educational practices and encouraging the spread of these practices to schools across the nation, the U.S. Office of Education (USOE) has established a National Diffusion Network. Created in 1974 under ESEA Title III, Section 306, this Network is designed to bring together representatives of federal, state, and local agencies to promote the exchange of successful ideas, materials, and programs within and across state lines. Through the Network, programs identified as successful and validated by the Dissemination Review Panel (DRP) are made available to Local Education Agencies interested in introducing these programs into their schools.

In addition to USOE, key elements of this Network are program Developers, Adopters, and Facilitators, who serve as linking agents between Developers and Adopters. As appropriate, Potential Adopters are given assistance in assessing their specific educational needs and in identifying programs from the Network pool that meet these needs. Provision of materials, training, and other technical assistance to Adopters generally continues into the implementation stage; in some cases, financial support to help defray the expenses of adoption is also provided.

USOE's Office of Planning, Budgeting, and Evaluation has contracted with Stanford Research Institute (SRI) to develop comprehensive and objective evidence regarding the scope and functioning of the National Diffusion Network. The SRI study is oriented toward examining the following aspects of Network operations:

- Adoption process--how adoptions occur and the time, effort, and cost factors associated with successful adoptions.
- Mediating process--the tactics and strategies used by Developers and Facilitators to diffuse the DRP-approved programs and how these differ in effectiveness.

- Context and receptivity--the factors influencing a Local Education Agency to interact with others in the Network and to adopt one of the available programs.
- Program features--the types of programs that lend themselves to diffusion through the Network and to successful adoption by interested Local Education Agencies.

Major goals of the SRI evaluation of the National Diffusion Network are to:

- Identify the major influences or determinants of adoption and implementation of educational innovations.
- Establish the functional and operational characteristics of elements within the National Diffusion Network, as well as the Network as a whole, and the influences of these characteristics on adoption of innovations.
- Identify interrelationships among attributes of innovations, Adopters, and change agents within the context of the Network as they affect diffusion and adoption of innovations.
- Isolate costs and resource requirements involved in the Network diffusion/adoption process, and investigate variations in return (adoptions), as functions of these programmatic and resource inputs.
- Identify strategies for improving the effectiveness of the Network.

The purpose of this report is to present the conceptual and operational details of our evaluation of the National Diffusion Network (NDN). In the second chapter, a conceptual model for the Network evaluation is derived from the general literature review and from NDN considerations. This conceptual model serves to structure the evidence to be gathered by the evaluation design, and to specify the analysis approach.

The third chapter describes the major features of the evaluation design. These include the sources of evaluation evidence, the measurement plan, and the resultant data base. The major evaluation variables are also defined in this section.

In the fourth chapter the operational plan and procedures for implementing the evaluation are described. The purposes and procedures

for five major data-gathering activities are presented: Program Review, Status Survey I, Network Evaluation Questionnaire, Observation/Interview site visit, and Observation/Case Study of NDN activities.

The fifth chapter presents the analysis approach. The three components of this approach involve discriminant analyses of determinants of LEA adoptions; regression analyses among innovations, Network and adoption characteristics; and case-study analyses to provide interpretive contexts for more formal analyses and to produce hypotheses for further exploration/confirmation.

II CONCEPTUAL APPROACH

The central issues that are most influential in determining the usefulness of an evaluation, in both the scientific and practical senses, are:

- The adequacy, explicitness, and appropriateness of the underlying theory, or the conceptual model, used to identify and organize the variables to be studied.
- The evaluation design, which represents the logic for obtaining measurements and analysis of data.
- The "measureability" of the phenomenon to be evaluated, as well as the actual measurements (instruments, procedures, and so forth) involved.

Since appropriate analysis procedures will be determined by the above general issues, the selection of analysis methods is viewed as a technical, rather than a major consideration (that is, the usefulness of data analyses can be no greater than the adequacy of the data with respect to analysis goals). This section is concerned with a conceptualization of Network diffusion/adoption activities on which to base the evaluation design.

A Model of NDN Diffusion/Adoption Activities

Three current models of diffusion/adoption of educational innovations have been identified in the NDN evaluation literature review (Hall & Alford, 1975). By comparing and contrasting these models with respect to their relevance to the NDN, one can identify, synthesize, and integrate their relevant features into a general framework for viewing the NDN. This framework then serves as the logical basis for identifying and organizing variables and issues to be studied in the evaluation.

It is not the purpose of this synthesis to build a theory or a new model of educational change. Rather, since the literature review indicates there is currently no adequate explicit model for the NDN,

it becomes necessary to provide one as an appropriate framework for the Network evaluation. Also, since many of the Network participants assert the NDN is an eclectic collage of conventional wisdom, current models, and some proven practices, it seems some eclecticism should be reflected in the evaluation model.

Review of Major Contemporary Models

By far the most pervasive general model--certainly the model with the largest acceptance and research attention in related areas of knowledge production and utilization--is the Research, Development, Diffusion, and Adoption (RDDA) model. This model is logically elegant but primarily descriptive. It describes what happens within a systems framework but, assuming improvements are possible, fails to suggest how it can operate better.

Two recently formulated and popular models of educational innovation and diffusion are the "Innovation Process" (Rand, 1975) and the "Configurational" (Clark & Guba, 1974) models. Both models point out important differences in the educational systems as compared to other technological or social systems towards which the RDDA model was oriented, and both use these fundamental differences as their foundation.

Although the Innovation Process and Configurational models seem quite similar in their overall description of the change process in education, they approach it from opposite perspectives. For example, the Configurational model describes ways in which dissemination activities must be adapted to idiosyncratic aspects of innovations and Potential Adopters. The model falls short of specifying the details of these adaptive requirements at an operational level. It is therefore difficult to derive prescriptions from, or test the adequacy of, this formulation. The Innovation Process formulation, on the other hand, concentrates on contraindicators of effective change strategies. Logically, this approach should be useful, since knowing what not to do may ultimately be as important as knowing what to do. Again, however, the specifications are at very general levels and offer little direction to the potential change agent. Basically, this model emphasizes the

the need for interpersonal interactions between disseminator and Adopter and the need to provide for local adaptation of the innovation.

Synthesis of Issues

The NDN currently incorporates major features of all three models, but in a new combination. The RDDA model is represented in the participation of the DDs and DRPs (research and development), the DDs and SFs (diffusion agents), and the provision of funds (Title III, Section 306 grants) to assist "Potential Adopters" learn about and implement the innovations (Adopters).

The Configurational model is represented in the fluidity of roles assumed by Developers and Facilitators; by the lack of extensive formal rules and regulations; by the tactics commonly employed by the change agents (for example, demonstrations, teacher involvement, adoption agreements, and so forth); and by the "network" concept, emphasizing extensive interfacing and communicating among disseminators (and adopters).

Finally, the Innovation Process model is represented in the NDN strategies involving on-site assistance (or release time for teachers); the allowance for local adaptions, the discontinuance of "Adopter grants" (as the Innovation Process model argues, innovation funds often attract the wrong, or "opportunist", Adopters), and the fairly relaxed schedules for "implementations" and "incorporations".

The NDN Model of the Diffusion/Adoption Process

The NDN seems to incorporate major components from all of the currently popular change models and to extend any specific formulation. Moreover, by considering simultaneously all of the components and functions currently descriptive of the NDN (for example, see Hall & Alford, 1975, "The Evolution of the Network", Part I), a general "Mutual-Interactive" model of the process of diffusion and adoption of innovations emerges. In other words the central feature of the NDN is its major emphasis on the mutual interactions among stakeholders (DD, SF,

LEA) in terms of certain key elements of the diffusion and adoption process.

Examples of this emphasis on mutual interaction are numerous. DDs and SFs frequently refer to adaption rather than adoption of innovations. Network spokesmen express distrust for claims of "universals" or "panaceas". A currently popular concept is the negotiated "adoption agreement", which often is a series of negotiated commitments on the parts of SFs, DDs, and LEAs, respectively. Both DDs and SFs report the use of "strategies" in formulating and implementing their diffusion tactics and activities. Facilitators and Developers often exchange roles and often perform similar (or interchangeable) functions. Perhaps most importantly, these stakeholder roles, activities, and functions are said to be continuously modified on the basis of changing characteristics of innovations, adopting units, Network elements, and a large and complex set of subtle contextual and situational factors.

Evaluation Implications

The basic task for the evaluation, then, is to structure all of these complex situational factors, contexts, and interactions into a set of relevant evaluation dimensions. This will help to objectively identify the extent and diversity of these mutual interactions, the conditions under which they vary, and their relative influence on adoption. In other words, this evaluation focuses on the extent to which NDN claims can be substantiated and also on identifying relationships among NDN activities, program and Adopter variables, and outcomes.

This task has been approached by grouping the evaluation variables into five major categories, thereby simplifying the situation for evaluation purposes. These five categories emerged from our initial evaluation task (both the review of the NDN and the literature review) and are described briefly below and in considerably greater detail in the next chapter.

Relevant Characteristics of Innovations

These characteristics have been subdivided into three major dimensions: Suitability, Feasibility, and Practicality.

Suitability--This dimension incorporates those characteristics of an innovation which determine its attractiveness to Potential Adopters. This includes both the degree to which educators perceive an innovation as compatible with current values, role perceptions, and the like, and the extent to which they view the innovation as an improvement over current practices (for example, see the notions of compatibility and relative advantage in Rogers and Shoemaker, 1971).

Feasibility--In the research literature, considerable attention has been devoted to issues of disruptiveness and their impacts on the adoption of innovative practices and programs. Such issues as the complexity, centrality, and adaptability of an innovation are generally considered important determinants of its installation and use. In the NDN evaluation these aspects are incorporated into the feasibility dimension, which reflects the relative ease or difficulty of putting NDN programs into practice at adopting locations.

Practicality--This is a final dimension of variables that relate to characteristics of innovations. This dimension reflects the content of the innovation, its novelty, and the intended target group and locus of implementation.

Relevant Characteristics of the Dissemination/Diffusion Tactics

Dissemination and linkage characteristics identified in the research literature have been described in the literature review (Hall & Alford, 1975) and form the basis for the specification of variables to be investigated. Information will be basically collected and classified to address the following question: Who does what to whom, when, and how? That is, information about major dissemination activities or collections of activities will be structured according to five variable groupings: who (the actor, or change agent initiating the activity),

what (the content, purpose, and volume of the activity), to whom (the size and composition of the target audience), when (the frequency and sequence of activities), and how (techniques, media, sanctions, and the like). The who and to whom categories are relatively self-explanatory, since they represent the actor and target of an activity, respectively.

Relevant Characteristics of the Adopting Unit

Variables considered relevant in terms of adopting units are subdivided into three dimensions: Organization, Personnel, and Context.

Organization--This dimension includes both district- and building-level attributes (as appropriate), such as the complexity, formality, and degree of centralization of authority and decision making; control structures, interdependence and departmentalization currently operating; and internal leadership and morale.

Personnel--This dimension will consist of evidence on locus of control, faculty, administrator and student-teacher rapport, and selected qualifications/experience demographics.

Context--This dimension includes general features of the community (educational and social) into which innovations are introduced. The set of Adopter context variables includes general demographic characteristics, current and previous association with innovation, and receptivity of various stakeholder groups to innovation and change.

Relevant Characteristics of the NDN Diffusion Agents

Variables considered relevant to characterizing the National Diffusion Network are subdivided into three major dimensions: Interface among participant groups, Resources and Management, and Organizational characteristics.

Interface--This dimension refers to the type, frequency, and purpose (content) of DD/SF/OE, and so forth, interactions; relative accessibility and proximity of participants; and participant competence, dependability, and experience.

Resources and Management--This dimension refers to the operational characteristics of participant groups, including the number, qualifications, and specializations of the staff; funding both in terms of support and allocations; the distribution of activities over time; the formative revision or improvement of operations (evaluation); and effects of the parent organization on participant operations.

Organizational--This dimension involves the conventional attributes of complexity, centralization, formality, and compatibility of the diffusion agent's organization.

Relevant Characteristics of the Adoptions

Four major dimensions of adoption of innovations are the focus of this evaluation. These are the status of the adoption process, the degree of adoption, attributes of the adoption process, and secondary diffusion.

Status of Adoption--Adopting locations will be classified into one of three groups, based on actions they have taken and an expressed intention to continue their association with one or more projects in the Network pool.

- Potential Adopter--a school or school system that has become informed (at the initial and/or secondary awareness level) of an NDN-mediated innovation and has expressed an intention to become further involved.
- Intended Adopter--an LEA that has received training and/or materials assistance and has expressed an intension to try the innovation within some reasonable time frame (but has not yet done so).
- Actual Adopter--an LEA that has actually tried the innovation and expresses an intention to continue for some reasonable time.

Degree of Adoption--Adoptions or tryouts of innovations will be examined in terms of the following attributes:

- Scope--the extent to which those aspects of a project defined as its "core elements" are being adopted and/or implemented.

- Level--the primary locus of adoption (for example, a single classroom, multiple classrooms, entire school, entire district).
- Fidelity--the extent to which the "core elements" are adopted as specified by the project Developer/ Demonstrator (that is, the relative absence of adaptation or modification of these core elements).

Process of Adoption--Major participants, key events, and timing of activities will be examined for each major stage in the adoption process, including:

- Awareness--the source, type, extent, completeness and flow pattern of information about an innovation in an adoption setting.
- Adoption decision--includes such aspects of the choice to try an innovation as participants involved, strategy employed in reaching consensus, commitments made, scope, and impact.
- Implementation--includes such aspects of the initial period of use of an innovation as type and extent of trial of the innovation; nature, scope, centrality, pattern and degree of change introduced by the innovation; and nature and scope of adaptation or modification of the innovation.
- Incorporation--the length of time and degree of completeness involved in an innovation becoming a standard feature of an adoption setting.

Secondary Diffusion--the extent to which an innovation spreads from one adoption setting to others.

We plan to consider each of these major categories of variables in terms of both associations with each other and with all other categories. The prevailing NDN philosophy is that the strength and effectiveness of the Network rests with its flexibility, adaptability, diversity, and ability to meet local requirements. Stated differently, the main property of the NDN is said to be the mutual interactions among elements. Two properties should become apparent if this is so: (a) there should be substantial variation among diffusion agents in their diffusion strategies, and (b) the effectiveness of dissemination strategies should be greater than the sum of the effectiveness of component tactics, where effectiveness is judged in terms of the characteristics of adoptions.

Considerations of this Interactive Model as a Basis for the Evaluation of NDN

The specification of interactions among categories of variables is not arbitrary. Rather, this condition imposes the requirement that knowledge of all major dimensions or variables is necessary for accurate prediction of diffusion/adoption. This condition also implies that "optimal" dissemination strategies, if they exist, will be specific to the particular innovations, Potential Adopters, and change agents involved (that is, will tend to be idiosyncratic). The types and definitions of major evaluation variables (dimensions) as determinants of outcomes represents to us the range of NDN and USOE concerns and reconciles the three alternative models into a framework comprehensive enough to encompass NDN activities and events. Also, although the categories of variables and their components are referred to as determinants, the model is intended as a probabilistic one, since there are undoubtedly additional determinants of the process which, either because they are currently unknown or unmeasurable, cannot be included in the evaluation.

Several important considerations support the use of the interactive model as a basis to study the Network. Among these are the relative degree to which the model actually corresponds with NDN practices and the useful nature of the findings.

Correspondence

The assumption that Network practices vary both in terms of innovations and linkage strategies is already established on the basis of our first evaluation survey (the "benchmark" or Status Survey I). It is clear that "Adopters" varied enormously in certain respects, as did the scope and emphasis of SF and DD practices.

The survey returns suggest about 1 out of 30 initial contacts and, subsequently, 1 out of 10 "Potential Adopters" proceeds to become an "Actual Adopter".[1] It would appear that our evaluation of the NDN has

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[1] See report on the returns from the NDN Status Survey I (Dec. 1975).

the potential to suggest some selection variables or characteristics, whose presence indicates that a diffusion campaign will probably result in an actual adoption. One such "risk reducer", popular among some of the Network linkers, is the adoption agreement. Though we concur in the logic associated with the adoption agreement, it was involved in only about one-third of the actual adoptions as reported by SSI respondents.[2] If the NDN evaluation reveals additional, perhaps even more reliable "risk indicators", such information could substantially improve the efficiency (or "return rate") of linker resources (time, staff, money). In other words, the cost/benefit ratio could be improved.

Another interactive relationship which this approach reflects is the suitability of linkage strategies in terms of innovation and Adopter characteristics. At a more subtle level, it may be possible to detect effectiveness of linkage strategies in terms of qualitative linker characteristics. This is consistent with an NDN principle that adaptation of methods may be very important. Certainly, there is little reason to believe linkage methods operate mechanistically and are independent of the personal attributes of the linker.

Potential Findings

The second consideration, usefulness of results, involves the type of findings likely to emerge from this evaluation approach. At the very least, we expect this evaluation approach to address the following issues:

- How the effectiveness of identifiable linkage strategies (type, technique, cost, frequency, sequence, and so forth) varies with identifiable innovation characteristics (content, complexity, cost, purpose, and so forth).

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[2]That is, roughly 33% of LEAs proceeding to actual adoption had previously negotiated adoption agreements with DDs or SFs. Since we do not know the proportion of LEAs who failed to comply with their agreement, its meaning as a risk indicator is uncertain.

- How the effectiveness of identifiable linkage strategies varies with characteristics of adopting units (district organizational aspects, school variables, teacher/personnel variables, adoption-risk indicators, context, and so forth). Note: this issue is not the same as the previously discussed use of evidence to identify "risk indicators" or selection variables. Instead, this issue involves determining the effectiveness of various strategies for specified adopting-unit characteristics.
- How characteristics of the Network (interfacing, resources, accessibility, management, organization) relate to the effectiveness of various linkage strategies.
- What factors relate to the effective diffusion of various kinds of innovations.
- How the linkage strategy, innovation, and adopting unit interrelate in terms of the outcome measures (awareness, adoption, implementation, and incorporation).
- How the effective diffusion and adoption of educational innovations affect improvement in educational outcomes (the ultimate criterion).

This last objective--the documentation of impacts on educational outcomes--has yet to be established as part of the scope of our evaluation. As such, we do not include it in the discussion of design, sampling, measurement, and analysis issues, which are the topics for the remainder of this report.

III EVALUATION DESIGN AND DEFINITION OF EVALUATION VARIABLES

In this section, the details of the NDN evaluation design are presented and discussed, and the major evaluation variables introduced in the preceding chapter are defined in greater detail. We distinguish evaluation "design" from evaluation "model" in the methodological sense. That is, in our discussions, the "Evaluation model" represents the conceptual framework, or rationale, for defining relevant evaluation characteristics, variables, relationships, and so forth. "Evaluation design", on the other hand, refers to the sampling plan, the measurement program, and related methodological issues (that is, a "pre/post" design versus a "post only" design). Since the design and model act jointly to determine the potential advantages and limitations of the evaluation, it is necessary that they be compatible.

In amplifying our definitions of the major evaluation variables, we use the same categories introduced earlier, namely characteristics of innovations, networking, adopter units, diffusion strategies, and adoptions. This conceptual grouping is extended further in the form of an evaluation paradigm, which is a simplified schema for displaying the hypothesized relationships and directional influence among the categories of variables. Also, the definitions of variables are provided more in descriptive or illustrative terms (such as, examples of issues) than in operational terms, although nearly all these variables have been operationalized as survey-interview-observation items or issues.

Longitudinal and Cross-Sectional Aspects of the Design

The design for this NDN study represents both cross-sectional and longitudinal components. Briefly, the design involves gathering status data from first-year participants (Status Survey I); gathering input, process, and progress data from both first- and second-year participants

during the second year (Network questionnaire, site visits, interviews, observation, secondary data), conducting case studies on the technical assistance component (ED), and documenting NDN events and functions. Basically, then, the evaluation design is oriented toward studying in depth the parameters of the diffusion process and the resultant consequences in terms of adoption of innovations.

The structure of this design in terms of these data-gathering operations is shown in Table 1. This table shows respondent group or sample as row elements and the data-gathering activities as column elements. Data-gathering activities (column elements) are displayed in their temporal sequence, which provides a visual summary of the longitudinal components of the design and thus shows the longitudinal comparisons potentially available and for which groups. Similarly, the row elements represent a cross section of the Network. This shows the cross-sectional nature of the design for each major data-gathering effort, as well as the cross-sectional comparisons potentially available for various data sources. A discussion of the data analyses planned for this evaluation is presented in Chapter V.

The Evaluation Paradigm

Given the central NDN feature of mutual interaction and the categories of evaluation variables described in the preceding chapter, the next step is to model the plausible direction of influence among these categories of variables. Such a model of directional influence (or causal sequence) constitutes the evaluation paradigm for structuring the classes of variables for statistical analysis and interpretation. This model is presented schematically in Figure 1.

Briefly, the model shows the classes of variables organized into three functional groups: antecedents, manipulables, and outcomes. Antecedents refer to all those relevant characteristics of the education environment that are expected to affect the diffusion/adoption process but over which diffusion agents have no direct control. These are the "givens" and include those variables describing characteristics of the

Table 1

SCHEMATIC REPRESENTATION OF THE LONGITUDINAL AND CROSS-SECTIONAL ASPECTS OF THE NDN EVALUATION DESIGN

Participant Group	Evaluation Activity: Program Review 7/75-12/75	Status Survey I 10/75	NDN Questionnaire 4/76	Interview & Observation Site Visit* 4/76	Observation/ Documentaion of NDN Activities 7/75-7/76+
USOE-NDN staff reports, files, etc.	X		X		X
Year 1 SFs/SEAs		X	X	X	X
Year 1 DDs/DRPs		X	X	X	X
Year 1 Adopters		X	X	X	
Year 2 SFs (new)			X	X	X
Year 2 DDs (new)			X	X	X
Year 2 Adopters (new)			X	X	
Technical assistance activities					X

*Only small samples of respondent group will be involved.

+Dates given are estimates.

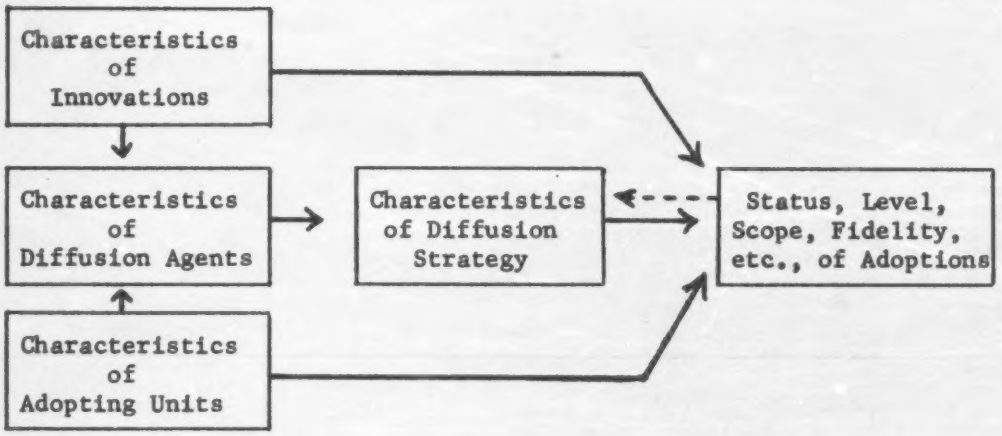

FIGURE 1 SCHEMATIC OF THE EVALUATION PARADIGM

innovations, adopting units, and of Network agents. The second group of variables, manipulables, includes those identifiable activities, diffusion strategies, and change-agent policies designed to influence or facilitate the diffusion and adoption of DRP projects. The outcome group refers to the pattern and extent, and any secondary consequences, of program adoption.

The paradigm portrayed in Figure 1 shows what we believe best represents the NDN model of the diffusion/adoption process. Specifically, outcomes (adoptions) are shown as determined partly by characteristics of the adopting unit and partly by characteristics of diffusion agents and their diffusion strategy. Furthermore, this diffusion strategy is itself shown to be a function of some characteristics of the innovations and the adopting units, both acting through characteristics of the diffusion agents. Finally, a feedback system is portrayed in Figure 1, indicating that strategies are modified by effectiveness evidence gathered through formative evaluations of change-agent activities (that is, DD/SF internal evaluations).

In summary, the paths indicated by the arrows in Figure 1 describe the direction of associations hypothesized among major categories of variables for our evaluation of the NDN. This paradigm also represents the Mutual Interactive model of the Network as we understand it and plan to study it.

This paradigm is but one of many possible. Its selection is based on its similarity to laboratory experimental paradigms used to establish causal relationships. That is, it seems plausible that the linkage strategy or sequence of activities is the causal force in diffusion, since it precipitates awareness of the innovation and presumably supports or facilitates the adoption process at subsequent stages.

This does not exclude or diminish the importance of natural affinities between adopter units and innovations. Rather, a linkage strategy seems logically appropriate as the independent variable partly because the strategy is presumably under the direct control of NDN change agents.

Since linkage strategies are assumed modifiable, any forthcoming evaluation results would have a better potential formative relevance and impact. This paradigm also enhances the potential policy relevance of evaluation findings.

Statistically, as will be shown later, it does not matter where a given category of variables appears. Thus, the paradigm is meant to communicate a sense of the logical and practical orientation of the evaluation plan.

Definition of the Evaluation Variables

Brief overview definitions of the major evaluation variables have already been presented. In this chapter, these variables are defined in more detail. In general, these variables are operationalized in the evaluation design in the appropriate data form (for example, survey, interview, observation, secondary-source material).

The Manipulable Variables

The manipulable (independent) variables are characteristics of dissemination activities and linkage strategies used by NDN change agents. Activities to be examined at each major stage of the diffusion/adoption process include initial and follow-up awareness, training, and adoption assistance. Dissemination and linkage characteristics identified in the research literature have been described in the literature review (Hall and Alford, 1975) and form the basis for specifying variables to be investigated. Information will be basically collected and classified to address the following question: Who does what to whom, when, and how? That is, information about major dissemination activities or collections of activities will be structured according to five variable groupings: who (the actor, or change agent initiating the activity), what (the content, purpose, and volume of the activity), to whom (the size and composition of the target audience), when (the frequency and sequence of activities), and how (techniques, media, sanctions, and the like). The who and to whom groups are

relatively self-explanatory, since they represent the actor and target of an activity, respectively. The other three categories include multiple components. Specifically, the who group includes the actor component: initiator of activity; role of actor in NDN (for example, Developer/Demonstrator, State Facilitator). The what category includes the following components:

- Type/kind--content of activity; orientation toward producing cognitive or behavioral change.
- Completeness/extent--level of detail at which information is presented.
- Volume--absolute and relative amounts of information conveyed; inclusion of information about entire program or selected components only.
- Content/level--extent to which activity focuses on abstract concepts or on concrete, explicit practices.

The to whom classification is defined as target/scope: intended receivers or target group; extent to which activity is directed toward entire population served or to selected subgroups; specific targets of activity within adopting units. The when category includes two component variables:

- Frequency--time intervals between contacts, repetition of activities.
- Sequence--extent to which a standard sequence of activities is used or to which activities are contingent upon results of earlier activities.

Finally, the how category represents stylistic aspects of dissemination activities and strategies. As such, it is the most complex of the five categories and includes the following components:

- Technique/method--method(s) employed to carry out activity (for example, mail out, conference, visit); familiarity or novelty of methods employed; extent to which methods are standardized or adapted to individual situations.
- Media/channel--mode of delivery or presentation (print, artwork, audio-visual materials, lecture, demonstration, and so forth); formality of delivery mode; use of existing channels.

- Cost/effort--cost and effort associated with preparation/presentation of activity.
- Reciprocity/feedback--use of one-way and two-way communication; activity/passivity of source and target in the information exchange process; extent to which diffusion activities occur in response to requests from Adopters.
- Redundancy--extent to which alternate methods and/or channels exist for conveying the same or similar information; extent to which these methods or channels are used.
- Campaign--degree to which activity entails "high pressure" tactics designed to "sell" Adopters on programs.
- Persistence--extent to which source or initiator makes repeated attempts to convey information or generate a response from recipient; amount of follow-up.
- Sanctions--rewards or sanctions promised or provided.

The Antecedent Variables

There are three classes of antecedent variables: characteristics of innovations, characteristics of the NDN agents, and characteristics of adopting units. To the extent possible and practical, the attributes listed below will define measurements of these variables.

Characteristics of Innovations

The defining attributes of innovations have been grouped into three dimensions of variables: Suitability, Feasibility, and Practicality.

Suitability--this dimension incorporates those characteristics of an innovation that determine its attractiveness to Potential Adopters. This includes both the degree to which educators perceive an innovation as compatible with current values, role perceptions, and the like, and the extent to which they view the innovation as an improvement over current practices (compare the notions of compatibility and relative advantage in Rogers and Shoemaker, 1971). Variables related to Suitability include:

- Compatibility--consistency or continuity of the innovation with prevailing contemporary lay and professional assumptions, priorities, role definitions, and so forth.
- Acceptability--extent to which the innovation is not likely to arouse resistance from teachers, administrators, community; extent to which aspects, of the innovation are considered noncontroversial.
- Popularity--popular image of the innovation type, extent to which innovation reflects currently popular ideas, practices, materials, and so forth.
- Relevance--the extent to which the relationship of the innovation to student benefits is perceived as direct, apparent, and so forth. (A major component of the relative advantage concept developed by Rogers and Shoemaker (1971) and used widely in the research literature.)
- Cost--absolute and relative expenditures of time, money, and energy required; typically considered are costs associated with start-up or original installation and with continued operation of the innovation.
- Repute--reputation and credibility of the innovation, based on claims of success from developers, early adopters, and so forth.

Feasibility--In the research literature, considerable attention has been devoted to issues of disruptiveness and their impacts on the adoption of innovative practices and programs. Such notions as the complexity, centrality, and adaptability of an innovation are generally considered important determinants of its installation and use. In the NDN evaluation, these aspects are incorporated into the feasibility dimension, which reflects the relative ease or difficulty of putting NDN programs into practice at adopting locations. Variables of interest are:

- Complexity--scope/comprehensiveness of the innovation; extent to which it requires numerous changes and affects multiple curriculum areas or functions of the school.
- Centrality--extent to which the innovation affects major functions of the adopting institution rather than peripheral areas.

- Discreteness--extent to which the innovation constitutes an "add-on" rather than a change in the overall operating systems.
- Completeness--degree to which an innovation is a complete entity, requiring no additional components for implementation.
- Concreteness/salience--visibility, tangibility of the innovation; degree to which it is based on materials, technology, and physical objects rather than ideas or concepts.
- Interdependence/divisibility--degree to which components of an innovation can function independently; extent to which changes in one aspect will affect other aspects.
- Integrity/adaptability--degree to which an innovation can be modified without losing its essential character (includes flexibility of content, target group, locus of implementation, and so forth.
- Time Frame/phasing--length of time required for trial, implementation, refinement, incorporation, and detection of results; incorporates the notion of "trialability" (feasibility of implementation on a limited basis prior to a full commitment).

Practicality--A final dimension of variables related to characteristics of innovations pertains to their practical value. This practicality dimension reflects the content of the innovation, its novelty, and the intended target group and locus of implementation. Speicific variables are:

- Nature--content or subject matter of the innovation.
- Novelty--the absolute and relative degrees to which an innovation is new and different rather than a minor variation of existing practices.
- Target group/purpose--intended target group and goal (for example, to "close gaps" between low-achieving students and their peers; to maximize individual growth).
- Locus of implementation--level at which the innovation is installed and operated (classroom, school, district, and so forth); extent to which adoption and/or implementation require collaboration and cooperation (that is, the innovation cannot be

adopted and operated by a single, autonomous individual).

NDN Characteristics

Three groups of variables are considered relevant to charcterizing the main components of the National Diffusion Network. As the Network is made up of funded and nonfunded developers and facilitators, as well as central management (USOE/SLEP) and peripheral groups (FWL, competing state programs), several categories of variables are considered relevant. These groups are interface among participant groups (DD, SF, SEA, USOE, FWL), resources and management, and organizational characteristics (within groups).

Interface--Important variables in this group include:

- Participant interactions--content, type, and frequency of interactions; extent to which expectations and role perceptions converge or conflict.
- Accessibility--perceived availability (for example, to answer questions, provide materials or receive visitors, and so forth).
- Proximity--extent to which participants interact primarily with others who are close to them geographically.
- Credibility--three aspects of credibility are relevant: competence (perceived expertise, reliability of professional credentials), trustworthiness (perceived sensitivity to needs and interests of others, dependability), and reputation (previous history of success or failure).

Resources and Management--Variables of interest in the resources and management dimension include:

- Personnel--number of full- and part-time staff; qualifications, and experience of staff; procedures by which staff assignments are made (for example, by region or subject areas; in advance or in response to identified needs and interests).

- Funding--level of financial support from federal and other sources, funding priorities; allocation of funds over time and across activities/target groups.
- Timing/schedule--pattern of activities over time; balance of schedule and relevance to school year; process by which priorities are set and scheduling decisions are made.
- Internal evaluation--degree to which documentation and assessment activities are conducted; goals and purposes of evaluation; types of information collected; impact on subsequent activities.
- Organizational context--influence of the organization within which linker group is located on diffusion activities; ways in which activities are facilitated or hindered.

Organizational--Finally, organizational features of the NDN agents include:

- Complexity--number and functions of separate levels and units included within the Network.
- Centralization--extent to which authority rests in a single body; locus of decision-making and identification of any competing groups.
- Formality--degree to which activities are governed by rules and specified procedures; scope, activities, and influence of Network Steering Committee.
- Compatibility--awareness within the Network of alternative diffusion strategies and organizations; interface with alternative efforts.

Characteristics of Adopting Units

The third category of antecedent variables comprises characteristics of adopting units. Relevant characteristics are grouped into three dimensions: organization, personnel, and context.

Organization--The organization dimension includes the following district and building-level features:

- Complexity--size and scope of district (elementary, secondary, unified); number of separate intra-organizational administrative entities, and number of occupational specialities.
- Formalization--number, type, rigidity of rules; degree to which emphasis is placed on following rules and specified procedures in carrying out roles and functions.
- Centralization--degree to which authority rests in a single administrative body; lines of authority; hierarchical structure.
- Conflict resolution/problem solving--capacity for identifying and resolving problems or conflicts; ways in which problems are identified and solutions are developed and implemented; individuals and groups involved in problem solving.
- Leadership--extent to which the district has exerted a leadership role in the past; locus and roles of opinion leaders.
- Control structure--relationship between those who have input to decisions and those who are affected by the decisions; roles of individual teachers, teacher groups, administrators, and so forth, in various types of decisions; governance structure.
- Faculty interdependence--provisions made for sharing of resources and facilities among faculty members; extent to which activities of one faculty member affect others.
- Departmentalization--formal or informal organization of the school into separate units (by grade level, subject matter, and so forth); autonomy of separate units.
- Internal evaluation--capability for evaluation; type and frequency of assessment of school programs and activities; impacts of evaluation on subsequent activities.
- Morale--general feelings of staff members toward their jobs and their work environment, sense of security, enthusiasm, prestige; sense of professionalism.

Personnel--Attributes of personnel located within organizations that have adopted Network programs will also be examined. Personnel variables that emerge from the literature as important for study are:

- Locus of control--sense of self-control versus belief in fate control (an individual's belief that he/she is primarily responsibie for his/her successes and failures is equated with internal locus of control; a belief that outside forces control one's destiny is described as external locus of control).
- Demographics of personnel--age, academic background, teaching experience; length of association with current school/assignment; personnel turnover rates.
- Faculty rapport--cordiality and congeniality within the teaching staff; acceptance of colleagues, internal sense of consensus; absence of cliques.
- Faculty/administration rapport--cordiality and congeniality between teachers and administration: formal and informal relationships; extent to which principals and other administrators are perceived as supportive, sensitive to teachers' needs, interests, and talents; type and frequency of teacher/principal interactions.

Context--A third dimension of variables is related to the general features of the climate into which innovations are introduced. The set of adopter context variables includes general demographic characteristics, current and previous association with innovation, and receptivity of various stakeholder groups to innovation and change. Specific variables of interest in the context or environment category are:

- Community demographics--size, urbanism, cosmopolitanism, geography, or community.
- Ethnic/racial composition--of community, staff, and students.
- Fiscal solvency/resource availability--sources of district income (federal, state, and local); per-pupil expenditures; availability of resources for innovative efforts.
- Political climate--community image as liberal or conservative; level and nature of controversy over educational issues (busing, teachers' strikes, and so forth); history and results of recent elections (school board, bond issues, and so forth).

- Previous innovation history--number, type, scope of other innovations previously tried out; length of association with other innovations; perceived successes and failures.
- Innovation sanctions--extent to which educators are rewarded or sanctioned for trying out new ideas and programs; criteria for professional advancement; incentives provided for professional development.
- Extent of current diffusion of innovations--number, type, and scope of other federal, state, and local programs currently operating or being considered for adoption.
- Community receptivity--community-level acceptance/resistance to change and to federal intervention.
- District support/backing--level of awareness, interest, commitment (of staff time, money, resources, and facilities), and involvement of superintendent, central office in innovation and change.
- School board support/backing--level of awareness, interest, commitment of school board.
- Professional association support/backing--awareness of and interest in innovations; extent to which innovation is consistent with or competes with association programs and priorities.
- Principal and school staff support/receptivity--extent to which innovation is perceived as relevant, useful, and feasible by the principal, participating teachers, and other teachers; type and extent of support for the innovation provided by the principal.

The Outcome (Dependent) Variables

The major outcome variables for the NDN evaluation pertain to status of NDN-mediated projects in adopting locations, degree of adoption, process of adoption, and secondary diffusion of the innovations.

Status of Adoption--Adopting locations will be classified into one of three groups, based on actions they have taken and an expressed intention to continue their association with one or more projects in the Network pool.

- Potential Adopter--a school or school system that has become informed (at the initial and/or secondary awareness level) of an NDN-mediated innovation and has expressed an intention to become further involved.
- Intended Adopter--an LEA that has received training and/or materials assistance and has expressed an intention to try out the innovation within some reasonable time frame (but has not yet done so).
- Actual Adopter--an LEA that has actually tried out the innovation and expresses an intention to continue for some reasonable time.

Degree of Adoption--Adoptions or tryouts of innovations will be examined in terms of the following attributes:

- Scope--the extent to which those aspects of a project defined as its "core elements" are being adopted and/or implemented.
- Level--the primary locus of adoption (for example, single classroom, multiple classrooms, entire school, entire district).
- Fidelity--the extent to which the "core elements" are adopted as specified by the project Developer/Demonstrator (that is, the relative absence of adaptation or modification of these core elements).

Process of Adoption--Major participants, key events, and activity schedule will be examined for each major stage in the adoption process, including:

- Awareness--the source, type, extent, completeness, and flow pattern of information about an innovation in an adoption setting.
- Adoption decision--includes such aspects of the choice to try an innovation as participants involved, strategy employed in reaching consensus, commitments made, scope, and impact.
- Implementation--includes such aspects of the initial period of use of an innovation as type and extent of trial of the innovation; nature, scope, centrality, pattern, and degree of change introduced by the innovation; and nature and scope of adaptation or modification of the innovation.

- Incorporation--the length of time and degree of completeness involved in an innovation becoming a standard feature of an adoption setting.

Secondary Diffusion--the extent to which an innovation spreads from one adoption setting to others.

The ultimate outcome variable will, of course, be the effect the innovations, once adopted, have on overall quality (or improvement) of education outcomes. However, this evaluation will not concentrate on student measurements. Only if sufficient secondary-source evidence of pupil effects is available will this dependent measure be considered.

IV OPERATIONAL PLAN AND PROCEDURES

The evaluation of the NDN is described as occurring in two phases: Phase I for planning and instrumentation, Phase II for data gathering, processing, analysis and reporting. Since these two evaluation phases occur for each separate, major data-gathering activity, some planning phases may overlap with other data-gathering phases, as was the case with Network questionnaire planning and processing of Status Survey I returns. However, all activities are related in terms of the basic evaluation design portrayed in Table 1 (Chapter III).

There are basically five major data-gathering activities involved in the evaluation plan: Program Review, Status Survey I (SSI), the Major Network Evaluation Questionnaire (NEQ), the Observation/Interview site visits, and Observation/Documentation of NDN activities. Each of these major activities will be described in terms of plans and procedures. These descriptions include goals, scope or objectives, instrumentation, sample, data-gathering activities, schedule, data processing, analyses, and reporting. These activities are then all summarized in terms of the overall evaluation plan. (Note--the Program Review and Status Survey I were completed at the time of this writing and are therefore described in the past tense.)

Program Review

Goal

The goal of the Program Review was to assess the state-of-the-art in the diffusion of educational innovations and to review the history, scope, and development of the ESEA Title III Diffusion/Adoption Network.

Objectives

The objectives were to compile a report on pertinent literature, identifying theoretical developments and empirical findings on the diffusion of innovations; to trace major trends in USOE's activities

and involvement in the diffusion of exemplary innovations leading to the creation of the NDN; and to identify the major evaluation issues and variables to be studied, as well as pertinent sources of data.

Procedure

The procedure involved the identification and acquisition of relevant source documents and sources of information (including interview and file reviews), the formulation of a review strategy and report outline, and the implementation of the strategy culminating in the preparation of the object report. The identification of source material included:

- Use of existing bibliographies and review documents produced in related studies, such as the Ohio State Vocational Education Study (see, for example, Hull and Kester, 1975), the Rand Change-Agent Study (Rand, 1975), the evaluation of the Project Information Packages field test (Stearns et al., 1975), and the NIE School Capacity for Local Problem Solving program (NIE, 1975).
- Advice and reference libraries from expert consultants in the field of dissemination of innovations (for example, Dr. Everett Rogers, Dr. Richard Carlson).
- Evaluation staff expertise and specialized professional competence.
- Documentation and information available from USOE and Network files and publications.
- Interviews conducted with key USOE and Network participants.

The review strategy was to separate the task into areas of specialization, so that all pertinent materials were circulated among the review staff. The preparation of the review report then involved a joint effort among senior project staff. This draft was subsequently revised by the authors of the final version (Hall and Alford, 1976); as stated in earlier chapters, this review report provided the basis for this evaluation design and analysis plan.

Status Survey I

Goals

The goals of this activity were to gather scope and cost data regarding Cohort I (1974-75) Network activities, to investigate the adoption status of DRP-approved innovations, and to establish baseline data for longitudinal study of the diffusion/adoption process.

Objectives

The objectives of the Status Survey I were to document the following:

- Distribution of Adopter LEAs by stages of adoption, schedule (timetable), program type, cost, region/state, and so forth.
- Distributions of DD/SF activities across such categories as awareness/demonstrations, training, installation assistance, liaison.
- Level of program support funds and expenditure patterns.
- Patterns of school and district personnel participation in adoption-related activities (for example, training).
- Patterns and variations in Network roles, frequency, and extent of "turnkey" stratagems, and information flow patterns.
- Level of awareness/support for Network functions by participant category, experience, community relations, awareness, and so forth.
- Types and extent of current or planned follow-on assistance/support, LEA evaluation plans, and so forth.
- Information needs and types of feedback/technical assistance desired by Network participants, by level and category of participation.
- Causes for nonadoptions (for example, inadequate funds, staff turnover, insufficient training, lack of acceptance, incompatibility with existing procedures).

Sample

A 100% sample of State Facilitators, Developer/Demonstrators, and approximately 73% of Adopters participating in the Network as of June

1975 were included in the survey. Adopters identified by SFs and DDs were defined as (schools or districts) that:

- Were currently in the process of trying out the innovations (Actual Adopters).
- Had received training and/or materials assistance and were scheduled to try out the innovations this year (Intended Adopters).
- Were scheduled to receive training and/or adoption assistance this year (Potential Adopters).

In all, 1,438 units were sampled for this survey: 1,307 Adopters, 76 State Facilitators or SEA Title III Coordinators, and 55 Developer/Demonstrators or DRP-approved projects. The Adopter-sampling procedure was to use both SF and DD lists, working first through DD lists and then through SF lists to find adopters not identified by DDs. Based on lists available when the survey was fielded (October 3, 1975), all DD Adopters and about half of the SF "residuals" had been identified and were included in the survey. Late arriving lists identified approximately 400 more Adopters, but these were not surveyed.

Instrumentation

Separate self-report survey forms were developed for Facilitators, Developers and Adopters, respectively. Each instrument was reviewed and pretested by at least three Network advisors (Facilitators, Developers) and by all evaluation consultants, and appropriate revisions were incorporated. To the extent possible, the three forms were made parallel in content and format. These forms were approved for use by the Office of Management and Budget (OMB).

Data-Gathering Activities and Schedule

Questionnaires were mailed directly to the target sample on October 3, 1975. Follow-up telephone calls to nonrespondents began on October 13, 1975. By mid-November, when the survey was closed out, 1,094 questionnaires had been received. Of these, 66 were from Facilitators, 46 from Developers, and 982 from Adopters. The return for Facilitators and Developers is in excess of 80%, while the return rate for Adopters is approximately 75%.

Data Processing

All completed returns were hand-edited and coded for keypunch. All useable returns were keypunched and 100% verified. Computer error checking and resolution procedures were used, and data files were created for analysis and reporting. These files consist of 896 Adopter, 44 Developer, and 61 Facilitator returns.

Analysis and Reporting

The initial treatment of the data involved tabulating responses and performing descriptive analyses to display the following characteristics:

- The volume and extent of dissemination activities at various stages in the diffusion/adoption process (awareness, demonstration, training, adoption assistance, evaluation).
- The relative costs involved in program adoption as reported by LEAs, SFs, DDs, and a breakdown of these costs by dissemination activity for SFs and DDs.
- Similarities and differences between DDs and SFs regarding use and effectiveness of dissemination tactics.
- Profiles or response patterns of DDs, SFs, and LEAs as indicators of diffusion/adoption progress.
- Projections of data trends to the total Network estimates of NDN progress, status, and cost-effectiveness during the first year.

These results are described in the Report on Returns from the First National Survey in the Evaluation of the National Diffusion Network. These data will also be used as baselines for Network evaluation analysis. Data issues are summarized in Table 3, page 54 of this document.

Network Evaluation Questionnaire

Goal

The major Network evaluation questionnaire is the primary data source for the measurement and evaluation of Network functions and

efforts. It is to provide general-level information on Facilitator and Developer variables (characteristics of dissemination strategies and NDN organizations), Network program variables (characteristics of NDN innovations), Adopter variables (characteristics of adopting units), and adoption outcomes (status, scope, level, and fidelity of adoptions) which can be linked up with baseline (SSI) and Observation/Interview data sources for the comprehensive NDN evaluation analyses.

Objectives

The objectives are to obtain detailed assessment of the following:

- Characteristics and variations of Cohort I and II Developer and Facilitator diffusion tactics (the "who, what, to whom, when, and how?") at various stages of the diffusion campaign (initial awareness, follow-up, training, adoption).
- Characteristics of Network operations, such as participant interfacing, resources and management, and organizational infrastructure.
- Characteristics of the adoption process (status, activities by stage, scope/level/fidelity, process, evaluation secondary diffusion, continuance).*
- Characteristics of the DRP-approved innovations (complexity/implementability, desirability, nature content) from DDs and Adopter LEAs.
- Characteristics of Adopter units (organization, personnel, risk indicators, context variables) from Adopter contacts, teachers, principals, and central staff.

Basically, therefore, most of the variables and attributes hypothesized as relevant to the diffusion and adoption of innovations or the evaluation of NDN, as described in Chapter III, are the measurement objectives of this questionnaire.

*It should be noted that the planned year-end survey previously designated as Status Survey II has been incorporated in its entirety within the scope of the NEQ. As such, the SSII will not be described as a separate task in this chapter, nor will it be fielded as a separate activity in the evaluation. Process and outcome (status) data are appropriately merged in our discussions of design instrumentation and analyses.

Instrumentation

We have defined six forms of the Network evaluation questionnaire. These are the Developer/Demonstrator, Facilitator, Adopter/LEA: Primary Contact, Adopter/LEA: Central Administrator, Adopter/School: Principal, and Adopter/School: Teacher forms.

The Developer form assesses the "who, what, to whom, when, and how" of activities in initial awareness, secondary (follow-up) awareness, training, and applicable adoption (implementation) assistance phases of DD diffusion strategies. This form also develops data on the following issues:

- Respondent experiences with and perceptions of the Network (participant interfacing, resources, and management issues, and organization infrastructure).
- Developer awareness of the number, status, and extent of local adoptions of his/her innovation.

The Facilitator questionnaire is basically parallel to the Developer form. Specifically, it assesses the "who, what, to whom, when, and how" of activities by stage of the diffusion process and the major characteristics and attributes of the Network operations and organizations. Also, while the Facilitator form requests data on the quantity of NDN adoptions by status and attributes, it does not address issues regarding characteristics of the innovations.

The Primary Contact questionnaire is by far the most complex form, since it involves, at varying levels of detail, items on all major characteristics of the Network, of SF/DD activities, of the DRP-approved innovations, of the Adopter LEAs (personnel, organization, context, and so forth), and of the adoption process (status and attributes). The Primary Contact is the designated spokesperson for the Adopter LEA, regardless of the scope and level of the adoption.

Taken together, the DD, SF, and Primary Contact questionnaires comprise the sources of evaluative data necessary to study characteristics of the Network, of innovations, of diffusion tactics, and of adoption effects at a fairly comprehensive level. The additional forms of the Adopter questionnaire are needed to focus on characteristics of the adopting units, such as school and district organizational infrastructure; political, social, and community climate; staff morale; intra- and interfaculty rapport; faculty-principal rapport; innovation sanctions; district demographics; extent of project diffusion; and related LEA-level variables that will help explain Network effects (that is, adoptions) and identify risk indicators for use in future dissemination efforts.

Two versions of these site-level forms address the above issues from the administrator's perspective. They are the Principal and the Central Administrator forms. While the Principal form focuses on staff morale, attitudes, activities and events, the Central Administrator form focuses primarily on demographic, political, social, and other community-level issues (that is, information which would be difficult for a principal to obtain or render). Both the Central Administrator and Principal forms focus on organizational infrastructure (decision making, communication, complexity, and formalization of structure).

Finally, the Teacher form parallels the Principal form in virtually all issues, except that questions are phrased to be answered from the faculty or instructional staff perspective. All forms are being reviewed by consultants and Network advisors within and outside the Network. Also, each form will be intensively pretested with a minimum of 3 (and a maximum of 9) participant representatives. The revised instruments will be submitted to OMB, along with necessary supporting statements, for the necessary forms clearance.

Sample

The sample for administration of the NEQ is defined at two levels. A general sample will include all SFs, DDs, and SEAs for states without funded SFs; all 900 Adopter LEAs responding to SSI (referred to as

"Cohort I Adopters"); and up to 600 Cohort II Adopters (that is, those for whom the adoption process began FY 1976). This sample cuts across all NDN variables and groupings of interest and will be used to document adoption rates, patterns, and influences at the general level.

A specific subsample of approximately 100 Adopter LEAs from the general questionnaire sample will be identified for the site-level assessment. This in-depth survey focuses on organizational, contextual, attitudinal, and programmatic characteristics of Adopters as determinants of adoption. For each LEA in this sample, the Central Administrator form will be administered to the central (district) administrative staff, the Principal form will be given to school principals, and the Teacher form will be sent to involved faculty in each project school. This will involve approximately 300 principals (an average of 3 schools per LEA Adopter) and 1,500 teachers (an average of 5 involved teachers per school).

In addition to all the information developed through the Primary Contact questionnaire, for this in-depth subset we will assess the early involvement process of the site personnel, the impacts of various diffusion tactics and NDN assistance from the LEA perspective, the impediments to adoption and how these are overcome, and staff (administrative as well as instructional) perceptions of social, organizational, educational, and economic factors. This in-depth sample is to include instances of the following:

- Major innovation types (that is, early childhood, basic skills, and so forth).
- Degrees of complexity
- Intended level of adoption (classroom/school/district).
- NDN Cohort (I or II for DD and SF).
- Proximity (DD--in-state versus out-of-state; SF--in vicinity versus out of vicinity).
- SF operational level (region, state, SEA).

- Geographic sector (East, Midwest, South, West).
- SF project size (small to large).
- Volume of adoptions (low to high, for both SF and DD).

As we are still gathering Adopter information, it is not yet clear that all of these conditions can be met in our final sample. We will come as close to this as practical.

Data-Gathering Activities and Schedule

The major data-gathering components are the targeting of forms to teachers and principals, the mail-out and follow-up program, and the data-processing and machine-entry procedures. SF, DD, Primary Contact, and the Central Administrator forms can be direct mailed on the basis of address information acquired by project staff. Principal and teacher identities will be solicited from the primary contacts, first by letter and later by telephone for those not responding to the letter request. Questionnaire forms will be mailed directly to these teachers and principals at their school addresses. Return envelopes (postage paid) will be provided, and follow-up postcards will be mailed about 2 weeks after initial mail-out. Telephone follow-ups will be made to all DDs, SFs, and Primary Contact nonrespondents and to a 50% sample of nonresponding principals no sooner than 3 weeks after the form mail-out. Primary contacts will be asked to request returns from non-respondent teachers (that is, to assist in follow-up).

Return status lists will be updated at least twice weekly, daily if possible. All returns will be hand edited and coded as necessary. Coded returns will be keypunched and 100% verified. Computer logic and range checks will be performed at data entry.

Analysis

Data from this questionnaire will be analyzed for status, scope, level, and rate of adoptions by each of the major design variables. Details of these analyses are provided in the next chapter.

Interview/Observation Site Visits

Although the NEQ will produce the largest volume of NDN evaluation data, the most detailed, pertinent, and potentially useful data will come from the interview/observation activities to be conducted at a select sample of DDs, SFs (and SEAs), and Adopter sites.

Goal

The goal of this activity is to learn the details of Developer and Facilitator approaches, strategies, and operating characteristics and to relate these to details of LEA adoption effects. One such adoption effect concerns the relative degree of project implementation. Other issues concern faculty and school characteristics that could not be directly assessed through the questionnaire. These activities, then, comprise a series of in-depth case studies of the adoption process from the change agent (SF/DD) and the adopter perspective.

Instrumentation

Separate instruments are designed for interviews and observation activities. The instrumentation for the interviews consists of issues lists and interview guides to organize the question/answer dialogue. Three such guides are being used, one each for the SF, DD, and Adopter interviews. Information will be gathered from SFs and DDs in such general areas as project background, staffing, objectives, operating style (initial and follow-up awareness activities, training, adoption assistance), internal evaluation, interface with other NDN participants, interactions with Far West Laboratory, and expectations for the future. General issues to be addressed through interviews with personnel at Adopter locations include review of the adoption process (key events, individuals involved, and so forth) from awareness through installation, the setting into which the project has been introduced, funding for project activities, and program evaluation. More complete listings of issues relevant to each of the three site-visit types are provided in the Appendix. These lists will serve as the basis for checklists and/or interview guides to be used by site-visit staff.

Observation data will be gathered at the demonstration schools during the DD site visits and at each of the adopter LEA sites visited. The observations are oriented toward establishing the following:

- Relative degree or extent to which the core elements of the innovation are in fact being replicated.
- Relative extent of adaptation, modification, omission/substitution.
- Relative level or extent of the implementation.
- Relative scope of the adoption.
- Extent the affected staff appear to have integrated/ incorporated the innovation or new practice.
- Apparent ease, competence, professionalism with which the staff uses the innovation.
- Apparent advantage the innovation offers.
- Satisfaction of involved faculty (and pupils, if directly involved).
- Other relevant attitudinal/behavioral/social/ curricular aspects of the adoption.

The observations are to be conducted by specialists who are "expert" in the particular innovation by virtue of familiarity and experience with the DD project, consultation with the DD, observation of the demonstration site, and relevant interviews with DD and LEA adopter personnel. The procedure to develop this expertise will include the following steps:

- Observers are to be assigned sites corresponding to not more than two specified DDs.
- Observers are to obtain and become familiar with all available details of their respective DDs. They, in effect, will conduct case studies on their assigned DDs.
- Observers are then to compile a list or description of the core elements (for example, what is this innovation attempting to do or have happen) and to develop operational definitions of these elements (for example, how would someone determine when and to what extent these essential elements were present)
- The DD will be consulted for review and advice on the operational definitions and observational criteria for essential ("core") elements of his/her project.

Suggested revisions to improve the feasibility and relevance of the observation procedure will be incorporated as practicable.

- A set of interview issues will be identified to supplement the observation procedure. These issues involve the project staff's (teachers, administrators or other staff as appropriate to the innovation) perceptions of the scope, level, and fidelity of the current implementation status of the innovation; expected future status and timeline; observational criteria (practical and ideal); representativeness of current evidence; and related questions. In short, the staff will be asked to describe, to the best of their ability, the particulars of their adoption.

- Independent of the staff interview, the observer will conduct the observation procedure. This will consist of implementation checklists and rating scales developed for use with the particular innovation (as described above). The observation criteria, although ultimately judgmental will be documented as thoroughly as possible with objective and verifiable components (for example, materials, furniture, staff, implementation scope and level). One major judgmental component of the observation procedure, then, will be the fidelity of the innovation as implemented in the school (or district). This fidelity evidence will consist of observer ratings on a set of high inference scales. In part, the scales will reflect the sense of mastery, confidence, and professionalism the project personnel display ("do they appear to know what they're doing, or should be doing?"). In part, the scales will reflect the degree to which essential features of the program, as agreed to by the site visitor and the DD, are present.

Data derived from this procedure will consist of:

- Interview responses from the relevant personnel on their concept of the innovation, its essential elements, its current implementation status, and its likely future status.

- Observational data from trained observers on the degree to which the program appears implemented, operational, and functional.

Sample

The sampling design for identifying the sites to be visited for observation/interviews is the following. From the Cohort I Actual Adopters, approximately 32 will be selected, so that two each are within 16 SFs and two each are Adopters of 16 DD projects. Figure 2 shows the 8 configurations produced by this sample.

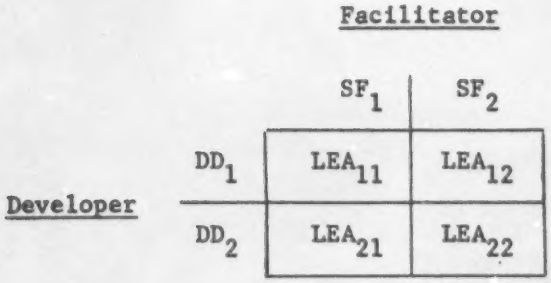

FIGURE 2 CONFIGURATION OF SF/DD/LEA STRUCTURES FOR THE SITE-VISIT SAMPLE

The Adopter sites will be selected from those involved in the site-inventory survey (that is, from the specific sample). Within the constraints established (Cohort I Actual Adopters, 2 sites per SF and 2 sites per DD), the same design variables (innovation type, complexity, adoption level, DD/SF proximity to Adopter, SF size/volume, SF operational level) will be used to select both the inventory sample and the site-visit subsample. A tentative site-visit subsample comprising 10 configurations has been constructed, the general characteristics of which are presented in Table 2. The identities of the sites corresponding to this tentative sample are presented in the appendix to this report.

Table 2

MARGINAL DISTRIBUTION OF TENTATIVE SITE-VISIT SAMPLE
ALONG DESIGN (SAMPLING FRAME) VARIABLES

Design Variable	Attributes		Count	Percent
Facilitators:				
A Org. level of SF	1.	SEA	1	5
	2.	Regional	4	20
	3.	State	15	75
B Geographical Region	1.	West	4	20
	2.	North Central	10	50
	3.	South	3	15
	4.	North East	3	15
C Support Level	1.	Under $30,000	1	5
	2.	$30,000 - $99,000	5	25
	3.	Over $100,000	14	70
Developers:				
X Program Type*	1.	Secondary alternative	2	10
	2.	Early childhoond screening	2	10
	3.	Parent readiness	2	10
	4.	Early childhood-interdisciplinary	4	20
	5.	Environmental	1	5
	6.	Basic skills	4	20
	7.	Specialized curriculum/special interest	3	15
	8.	Special education	1	5
	9.	Training/organizational arrangements	2	10
Y Adoption Volume	1.	Few (less than 10)	7	35
	2.	Many (10 or more)	13	65

* One project is counted in Groups 4 and 7.

Data Collection and Processing Schedule

The estimates for the interview/observation site-visit schedules are as follows:

- Facilitators--An average of two days for discussion with the project director, staff members, and review of files will be required.
- Developers--An average of two days to interview the project director, staff members, possibly other demonstration-school staff members, and principal; to observe the demonstration program; and to review files will be required. Interviews and observations will occur over both days, with observations during both mornings and afternoons. If multiple schools participate, visits will be made to more than one. The "demonstration school" (that is, the one viewed by visitors interested in adopting the program) will always be observed.
- LEA adopters--An average of two days to interview project staff members, principal, and possibly other school staff members; to observe the programs; and to review files will be required. We plan to split both interviews and observations over both days, to observe both mornings and afternoons. If more than one school in the site is involved, several will be selected for observation and interviews, as time permits.

The current schedule for commencing the interview/observation field work is mid-April (that is, the week of April 12, 1976). Easter recess will occur for one week somewhere during the April 19-30 period. The visits will be planned around these local vacations. During periods when DD/SF/LEA interviews and observations cannot be conducted because of vacations, and so forth, site staff will return to SRI and process data already collected. This will also provide an opportunity to make any last minute corrections/adjustments in our procedures.

The development of the interview guides and observation procedures began in January and February, respectively. Final adjustments in target sites and site-visitor assignments are being completed in March. Observers will complete their review of site materials and specification of core elements and observational criteria in March 1976. Reviews and

comments by DDs will be obtained by March, so that final procedure details can be established and formalized by early April 1976.

Training and practice in the use of interview guides and observation scales will take place during the month of March 1976. All final procedures are to be formalized in procedure manuals and data-recording forms. We anticipate that these materials will be completed in ample time for OPBE and NDN review. Since observation and interview forms and procedures are being tailored to SFs, DDs, and LEAs, in no instance will a single form be administered to more than 9 persons. Therefore, OMB clearance will not be required.

Secondary Data

At both SF/DD and Adopter sites, we will make extensive use of secondary data made available for our evaluation. At SF and DD sites, these secondary sources will include file reviews, project reports and evaluations, relevant correspondence, and any other information potentially relevant to documentation of the SF/DD operations scope and strategy. Similarly, any local Adopter project evaluation reports, operational files, or other relevant and available secondary data will be reviewed and processed for documentation/analysis purposes.

A third source of relevant data to be investigated will be USOE/DSCS (Title III). Of particular interest will be quarterly reports from DDs and SFs regarding their project activities and evaluations.

Analysis

The data collected through the NEQ and interview/observation/site visits will constitute the basis for Network evaluations at three levels of specificity:

The Overall Network--This will include SSI returns, SF, DD, and Contact questionnaire returns, and secondary data (as available and appropriate). These analyses will examine general characteristics of the innovations, DD/SF Network activities (by stage and component), Network infrastructure, and LEA contexts as they relate to patterns and degrees (status by attribute) of adoption over time (Cohort I-

Cohort II) and at any given time. These analyses, then, will emphasize DD, SF, and Network factors as they relate to adoptions.

LEA Inventory Subset--The subsample of approximately 100 LEAs will be the basis for a more complex analysis of the organizational and contextual variables within LEAs which predispose or signal the likelihood of adoption. Again, the major analysis variables will be SF/DD characteristics and activities, using certain DD/SF attributes as design variables. The survey responses to Teacher, Principal, Central Administrator, and Primary Contact forms will produce measures on both context and dependent variables.

Observation/Interview Subset--The most intensive analyses will be conducted on the site visit plus interview data set. This will consist of fairly complete information on 30 to 40 LEAs for which all relevant variables (IV, MV, DV) have been measured in great detail. These measures can be aggregations of survey, interview, observation, and secondary data and should provide a useful basis for testing the interactive claims of the Network at virtually a case-study level. Findings generated at this level will be tested as hypotheses (as appropriate), using the more general data bases (for example, the LEA inventory or the total Network) to establish generality.

Further descriptions of the analysis approach are provided in the next chapter.

Observation/Documentation of Other NDN Activities

The two remaining major data-gathering components are the case study of the Far West Laboratory Technical Assistance component (ED) and the observation and documentation of a sample of NDN conferences, workshops, and demonstrations.

Goal

These two study components are to round out the total evaluation by providing documented glimpses of the techniques, audiences,

services, and activity patterns comprising the NDN over the year. This qualitative information will also give meaning to survey returns.

Objectives

The objectives of the Far West Laboratory case study are:

- To determine the extent to which NDN participants are aware of the types, range, and necessity of services offered.
- To identify the types of assistance most often sought and/or provided, the types of participants (or programs) for which assistance is most often requested and/or provided, and the costs of assistance provided to NDN participants by Far West.
- To determine the types and extent of benefits and improvements that accrue from the technical assistance component, including savings in cost and improvements in participant efficiency, organization, and communications.
- To identify both the major advantages and the difficulties associated with a centralized approach to technical assistance and to offer recommendations for future efforts.

The objectives of the observation and documentation of Network events are:

- To assure that SRI is informed of Network development and emerging themes.
- To provide an objective documentation of the purposes, proceedings, and accomplishments of major events.
- To place such meetings, conferences, and workshops into the context of overall Network operations.
- At the advice of USOE, to participate in the agenda (for example, by presenting descriptions of goals, activities, relevant findings, and the like).

Method and Procedure

Both activities are conducted using the case-study approach.

Far West Lab Case Study--As the title implies, this task is organized as a case study of the centralized technical-assistance project. The Far West Lab has publicized its component as "Educational Diffusion" under the logo "ED". Two approaches are used. The

first is an organizational approach, in which the technical-assistance component is viewed from the perspective of Far West. Visits to Far West Lab by SRI evaluation personnel are coordinated by an SRI staff member designated as liaison. On the average, these visits take place biweekly and last from two to four hours. SRI activities during these visits include observation of relevant Far West staff meetings, interviews with staff involved in providing technical assistance to NDN participants, and systematic review of project files. The second component of the Far West case study involves viewing Far West activties from the perspective of NDN participants. Procedures include observation of Far West activities in the field (for example, regional cluster meetings), inclusion of items related to services requested from and/or provided by Far West on the Network evaluation questionnaire, and interviews with selected NDN participants.

Observation/Documentation of Network Events--Based on NDN calendars and lists provided by SFs and DDs, schedules of events (including awareness sessions, project demonstrations, training workshops, and the like) are prepared and continuously updated. A sample of awareness and training events sponsored by various SF/DD combinations have been targeted for observation and documentation by SRI, as are all major (national) NDN conferences and meetings. For each meeting attended, SRI observers document the following elements:

- Title, time, and data of meeting.
- Purpose (for example, orientation, initial awareness, secondary awareness, training).
- NDN participants (SFs and DDs) involved.
- Methods used (for example, lecture, question and answer, small group discussion, demonstration).
- Size and composition of audience (for example, teachers, administrators).
- Media used (for example, filmstrip, slides, handouts).
- Synopsis of main points, how points are made and emphasized.
- Audience reaction (for example, enthusiastic, confused, bored), types of questions asked, comments made.

- Observer impressions (strengths and weaknesses, improvements needed, overall rating).

Schedule

Both the Far West Lab case study and the observation/documentation of Network events tasks are scheduled to continue throughout the duration of the evaluation period. Data collection activities for both tasks began within six weeks of the contract award; attendance at NDN meetings and visits to Far West Lab will continue on a periodic basis through the end of June, when Title III support for the NDN is scheduled to terminate.

Analysis and Reporting

Far West Lab Case Study--Information gathered during visits to Far West Lab, interviews, and the like is mainly qualitative in nature and will be treated according to case-study methodology. Along with data collected in the Network Evaluation Questionnaire, this information will be used to develop findings and recommendations regarding the impacts and overall utility of the centralized approach to technical assistance. These findings and recommendations will be presented in the final report of the evaluation.

Observation/Documentation of Network Events--Again, information is basically qualitative. SRI observers prepare reports on individual conferences according to the information categories described above. Documentation of meetings and conferences attended through the end of October has been compiled into an interim report, which will be updated as appropriate. Information will also be used to supplement data gathered through survey and site-visit methods and support findings and recommentations presented in the final report.

Summary of Evaluation Plans and Procedures

In the preceding parts of this chapter we have described the major data-gathering plans and procedures, which constitute our plan

for evaluation of the NDN. In this part, the components are consolidated into summary tables to show:

- The distribution of the planned measurement of evaluation variables in terms of data sources.
- The current sampling plan in terms of participant groups and data sources.

Together, these two summary tables constitute both the design and substance of overall evaluation.

Variables by Data Sources

The distribution of measurements on evaluation variables by data sources is presented in Table 3. Evaluation variables are listed as rows and data sources are listed as columns. Table entries indicate the variable (row) that will be (or has been) measured by means of the indicated source (column). The pattern of entries displays both the relative distribution of evaluation focus and the kinds of comparisons planned (or possible). For example, variables measured in both the Status Survey and the NDN survey (NEQ) can be used for longitudinal comparisons. Entries within surveys (columns) represent possible cross-sectional (simultaneous) comparisons.

Sampling Plan by Data Source

Table 4 presents a summary of the sampling plan for SFs, DDs, LEA Adopter contacts, principals, central staff, teachers, and sites (for site visit) for each of the questionnaires, or data-gathering components. Also included in this table are sample specifications (quantities) for FWL case-study site visits, NDN meetings and conferences, and telephone surveys with personnel involved in non-NDN state diffusion programs. The values entered in this table reflect our best current estimates of the quantities to be involved (or, in the case of SSI, the actual quantities). Also, estimates of probable return rates have been made so that the volume of the resultant data bases can be estimated. Again, with SSI, the figures are based on actual data, whereas for NEQ the return rates are estimated--at 80% for DDs and SFs, 67% primary contact, and 50% for principal, teacher, and central staff anticipated return rates.

Table 3

DATA SOURCES OF NIH EVALUATION VARIABLES

	Status Survey			NIH Survey						Other		
I Manipulable Variables	Devel. Quest.	Fac. Quest.	Adptr. Quest.	Devel. Quest.	Fac. Quest.	Primary Contact Quest.	Prin. Quest.	Tchr. Quest.	Central Adm. Q.	Intrvw	OBS	File Review
Awareness:												
• Who	X	X	X	X	X	X				X		X
• What	X	X		X	X	X				X		X
• To Whom	X	X		X	X	X	X	X	X	X		X
• When	X	X	X	X	X	X				X		X
• How	X	X	X	X	X	X				X		X
Training:												
• Who	X	X		X	X	X		X		X		X
• What	X	X		X	X	X	X	X	X	X		X
• To Whom	X	X	X	X	X	X	X	X	X	X		X
• When	X	X	X	X	X					X		X
• How	X			X	X	X		X		X		X
Implementation:												
• Who					X	X				X		X
• What	X	X		X	X	X		X		X		X
• To Whom				X	X	X		X		X		X
• When	X	X		X	X	X		X		X		X
• How				X	X	X		X		X		X
II Antecedent Variables												
Innovation Characteristics:												
• Suitability				X		X	X	X	X	X		
• Feasibility				X		X	X	X		X	X	X
• Practicality				X		X	X	X		X	X	X
Network Characteristics:												
• Participant Interface	X	X		X	X	X				X		X
• Resources and Management	X	X		X	X					X		X
• Organization				X	X					X		X
Adopting Unit Characteristics:												
• Organization						X		X	X	X		X
• Personnel			X			X		X	X	X		X
• Context			X			X		X	X	X		X
III Dependent Variables												
Status of Adoption:												
• Potential Adopter		X	X	X	X	X				X		
• Intended Adopter	X	X	X	X	X	X				X		
• Actual Adopter	X	X	X	X	X	X	X	X	X	X		
Degree of Adoption:												
• Scope						X				X	X	
• Level			X			X		X		X	X	
• Fidelity				X		X		X		X	X	
Process of Adoption						X	X	X	X	X		X
Evaluation of Adoption	X	X	X	X	X	X				X		X
Secondary Diffusion						X	X	X	X	X		
Discontinuation			X			X	X	X	X	X		X

Table 4

SAMPLING PLAN (NUMBER OF UNITS) OF DATA SOURCE BY STUDY GROUP

Study Group	Status Survey: Devel. Quest.	Status Survey: Fac. Quest.	Status Survey: Adptr. Quest.	NDN Survey: Devel. Quest.	NDN Survey: Fac. Quest.	NDN Survey: Pr. Cont. Quest.	LEA Subset: Prin. Quest.	LEA Subset: Tchr. Quest.	LEA Subset: Central Adm. Q.	Site Visits: Intrvw.	Site Visits: OBS	Site Visits: File Review	Other: FWL Case Study	Other: NDN Mtngs.	Other: Telephone Survey
Cohort I:															
DD	55			55						8	8	8		10	
SF		76			76					8		8		10	
LEA			1300			900	180	900	60	32	32	32			
Cohort II:														5	
DD				33										5	
SF					54										
LEA						600	120	600	40						
Other:													25		
USOE															25
SEA															
Returns	44	62	906	70*	100*	1000+	250*	1250*	50*						

* Estimated as 80% return rate.
\+ Estimated as 67% return rate.
* Estimated as 50% return rate.

Finally, Figure 3 displays the cumulative properties of the overlapping sample subsets involved in this design. In other words, this figure shows what the general pattern of data gathering will be, which subsets will be involved in multiple measurements as well as what multiple measurements, and the general proportionality of this plan from level to level. Analyses described in the following chapter will refer both to this figure and to the preceding two tables.

Schedule Summary

The tentative schedule for commencement and completion of the general data-gathering activities described in this chapter are summarized in Table 5.

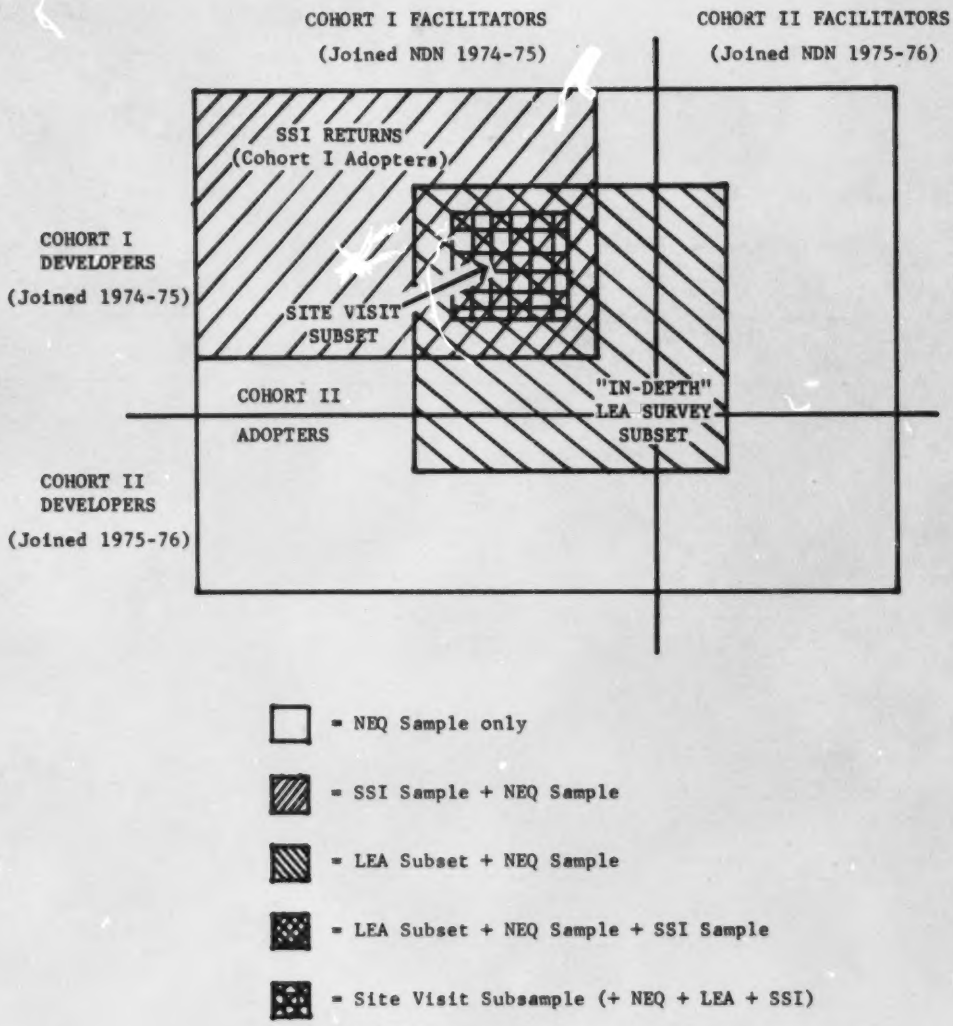

FIGURE 3 DIAGRAM OF THE SAMPLING DESIGN FOR THE EVALUATION OF THE NDN

Table 5

SCHEDULE OF ACTIVITIES FOR PHASE 2

Activity/Task	Start*	Complete*
Network-Evaluation Questionnaire:		
Prepare draft instruments	10/75	12/5/75
Revise and modify instruments	12/18/75	1/13/76
Pretest and external review	1/14/76	2/6/76
Final revision formatting	2/1/76	2/13/76
Submission of OMB package	1/5/76	2/13/76
Construct inventory sample	1/26/76	2/23/76
Draft and distribute plans to NDN	2/17/76	2/23/76
Revise OMB package	2/17/76	2/27/76
Assemble distribution lists		
SF/DD/Adopter	9/75	3/5/76
Administrator, teacher, principal	3/1/76	4/2/76
Mail out questionnaires	One week following OMB clearance, but not before 4/3/76	
Postcard reminder	2 weeks after mail out	
Telephone follow-up	4 weeks after mail out, for 2 weeks	
Returns processing/editing	2 weeks after mail out, not earlier than 4/19/76	
Development of data files	5/17/76	7/2/76
Statistical Analysis	7/6/76	8/31/76
Draft report of findings	8/15/76	9/15/76
Observation/Documentation Site Visit:		
Identify basic issues/procedures	1/3/76	2/12/76
Construct sample and site assignments	1/26/76	2/20/76
Construct interview guides	2/17/76	2/27/76
Construct observation procedures	2/23/76	3/12/76
Field training--interview	3/1/76	3/19/76
Field training--observation	3/1/76	3/19/76
Schedule site visits		
Trial run	3/1/76	3/12/76
Balance	3/15/76	4/9/76
Revise/refine procedures	3/25/76	4/9/76
Implement site visits		
Trial run	3/22/76	3/24/76
Balance	4/12/76	5/14/76
Site-visit debriefing/data input	5/17/76	5/21/76
Case-study reports	5/24/76	6/18/76
Observation/Documentation of NDN Events and Components:		
NDN demonstrations (site visit)	9/75	2/76
Training workshops (local site visit)	9/75	4/76
Major NDN conferences	7/28/75	3/28/76
FWL site visits	8/75	6/76
FWL interviews	3/76	6/76

*Dates given are estimates

V ANALYSIS APPROACH

As described in the preceding chapters, the evaluation of the National Diffusion Network is based on the concept that the Network's diffusing agents influence the adoption of innovations by employing strategies that are responsive to the characteristics of the adopting unit, the innovation to be adopted, and, of course, the agent's own characteristics. The data-collection efforts are aimed at characterizing these strategies as a gross level through surveys and at a more detailed level through the use of site visits and interviews.

The plan for the analysis of these data is keyed to the several overall study objectives:

- Identify the major potential demographic determinants of adoption and implementation of educational innovations being diffused by the Network.
- Describe the relationships among the major Network elements, the Developer/Demonstrators and the State Facilitators, and examine the association between these characteristics and adoptions.
- Identify strategies associated with adoptions which are expected to continue through the next year. The wider use of such strategies would be a rational means of attempting to increase the Network's efficiency.

Each of these goals investigates the relationships among facets of Network participants and program adoptions. In the treatment of the NDN evaluation data, adoptions will be characterized as occurring in three identifiable stages: "potential adoption," "intended adoption", and "actual adoption". It is recognized that, to a small degree, this convention distorts the continuous nature of the adoption process. These stages correspond to three general activities engaged in by Network elements and the community of potentially adopting units.

Such a unit is in the potential adoption stage when it is aware of an innovation and is interested in further information. It is in the intended adoption stage when steps to acquire skills and resources requisite to implement the innovation have been taken. A unit is in

the actual adoption stage when it has implemented the program and expresses an intention to continue for another year. The presumption is that the strategies employed by the diffusing agents will be somewhat different for units in the various stages, since a unit's needs will change according to whether it is trying to select, establish, or continue an innovation.

Primary Analysis of Questionnaire Data

The principal means for studying the effects of diffusing agents' activities on adoptions will be to examine the activities' impacts, as obtained by the Contact questionnaire on the proportion of units which move from one adoption stage to another. The statistical tool chosen for doing this is discriminant analysis, which, although not the most powerful technique for the purpose, is fairly well understood in the field of education.

The units which form the groups to be discriminated will be identified by the Status Survey I data. For example, those units which were considering adopting an innovation at the time of Status Survey I, but which are not doing so at the time of the Network evaluation study, will be compared with those who were considering a program at the time of Status Survey I and are now either in training or actually incorporating a program. Similar comparisons will be generated for each adoption stage. The same approach, discriminant analysis, will provide the main assessment of the impact of demographic factors on the adoption and implementation of educational innovations.

The discriminant analysis of Contact questionnaire data will be supplemented by contingency tables, based on the Facilitator and Developer/Demonstrator questionnaire, displaying the number of diffusion agents using specified combinations of means of communicating, so that the evaluation will describe the main interactions among the Network elements. Based on these tabulations, variables that reflect interaction types will be constructed for use in least-square analyses, which will assess the variables' impacts on the proportion of adoptions that transition among adoption stages.

The utility of the analyses in this evaluation will be heightened by constructing variables that not only formally discriminate those units that make the transition from one adoption stage to another, but that also confirm or refute some of the more widely held beliefs about Network functioning. As stated in the discussion of the design issues, the central feature of the Network seems to be the emphasis on the interaction among elements. These interactions will be explored both from the descriptive point of view (what these exchanges are) and from the evaluation point of view (what impacts these interactions have on units in the various stages of adoption). As discussed in the description of the evaluation paradigm, care will be taken to formulate variables so that the nature and impact of the diffusion-agent activities are assessed.

Another feature of Network agents' activities is that they are based on distrust of panaceas, or universally valid approaches to diffusing innovations. For this reason, the questionnaire data will be analyzed to try to show the variety of approaches employed by diffusion agents; however, the emphasis will be on discovering uniformly successful approaches. The reason for this is two-fold. First, tactics that are associated with success in several contexts have more opportunity of being causally related to the transition of adopting units from one stage of adoption to another. Secondly, questionnaire data are more sensitive to phenomena generally distributed across respondents than to idiosyncrasies.

The NDN Evaluation will assess the idiosyncrasy of the diffusion process, as implemented by Network agents, through the case-history analysis of the site-visit data described in the preceding chapter. These visits are the appropriate vehicles for a deeper inquiry into the amount of adjustment made by the diffusion agents to accommodate the various circumstances of adopting units. It is assumed that these accommodations will have effects on the scope, level, and fidelity of the implementation.

An important feature of the National Evaluation Questionnaires is the large number of items which they devote to the social climate of adopting units. These organizational variables are explicitly referenced by the diffusing agents in their attempts to encourage adoptions. Accordingly, the results of analyses relating such variables to adoption outcomes may provide information on risk factors which, if considered by a diffusing agent in his/her strategy, may increase his/her efficiency. The main statistical technique for the discovery of such factors in the questionnaire data will be discriminant analysis, supplemented by weighted least-squares applied to the proportion of adoptions successfully making transitions among the adoption stages.

Additional Analyses of Questionnaire Data

As implied in the preceding chapters, the national evaluation data will support a large number of additional interrelating characteristics of linkage strategies, innovations, and the Network. The plan for this subsequent analysis of the evaluation data is to be selective in the choice of which of these analyses to execute. The choices will be based on the outcome of the primary analyses, as informed by the site visits and analysis of other data sources.

However, it is anticipated that several general areas of network activities will emerge as important in determining adoption outcomes. These are adopting-unit awareness, the type and extent of implementation, the general structure of the adoption decision-making process, and the interrelation of adoption-link factors. It is expected that regression-type analyses will be sufficiently powerful to examine the variation observed in items sensitive to their area of concern.

The Role of the Site Visits and Case Studies

As described in the last chapter, our evaluation will conduct three types of case studies: interview/observation site visits, case study of Far West Lab ED, and observation/documentation of NDN events and activities. An objective of the interview/observation

site-visit studies is to learn the details of Developer and Facilitator approaches as well as the characteristics of the adoptions found at the LEAs. These data will be used to generate the textual descriptions of diffusion-agent activities, and, together with the descriptions found in the secondary data sources, will provide the materials for interpreting the results of the formalistic primary and secondary analyses. In general, this observation, interview, and secondary source material will guide the interpreting of the statistical analyses.

The second type of case study reviews the Far West Laboratory technical assistance component of the Network. Observation of the technical assistance component is to help assess the extent to which diffusion agents' strategies incorporate the services supplied by FWL. In addition, the services themselves will be examined in terms of the events indicated by the primary analyses to be successful strategies for achieving adoption. The third type of observation activity is observation of a sample of NDN conferences and workshops. This third observation activity is designed to assist the evaluation staff in keeping abreast of emerging NDN Network trends and to confirm by direct observation the operation of those components of diffusion-agent strategies that involve such activities.

Overview of Relationship of Analysis Activities to Analysis Issues

In summary, the data generated by the evaluation of the National Diffusion Network will principally be analyzed using discriminant analyses to formally assess the impact of diffusion-agent strategies and LEA demographics on the adoption process. These analyses will be supplemented by cross tabulations and least-square analyses to describe the interactions of Network particpants. The evaluation data will also be analyzed in terms of the sociological climate prevailing in adopting units. The hope is that variables sensitive to such factors will be predictive of the likelihood that adoptions will successfully progress from potential through actual status. Many secondary analyses can be performed based on the data collection plans described in this document. However, only a small

subset of these will be executed. Which subset that is remains to be determined by the results of the primary analyses and the case studies. As a last point, it should be emphasized that the primary determinant of the interpretation of the statistical analyses will be nonstatistical: the themes generated by the case studies.

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